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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/787,496

10/17/2001

Keith Mario Torpy

10032.00

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7590

03/04/2004

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EXAMINER

FASTOVSKY, LEONID M

ART UNIT

PAPER NUMBER

3742

DATE MAILED: 03/04/2004

14

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/787,496

Applicant(s)

TORPY ET AL.

Examiner

Leonid M Fastovsky

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 29 December 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 October 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-2, 4, 6-7, 9-11, 16-17, 19-20, and 26-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Auding et al in view of Hunt et al (6,396,387) and further in view of Sasaki et al.

Auding et al discloses substantially the claimed features including a thin film heating element (Fig. 1) including a layer of electrically conductive metal oxide on electrically insulating substrate (Abstract), the metal oxide layer being doped with foreign atoms, but does not disclose the layer being doped with at least one rare earth element. Hunt et al shows a heating element with metal oxide layer consisting of cerium (Col. 24, lines 25-40, Claim 1-2), and Sasaki et al shows two rare earth elements such as cerium and lanthanum (Col.1, lines 23-40). In addition, Auding et al discloses the metal oxide layer further including a donor element -an antimony and acceptor element -zinc in a quantity from 3 to 5 at. % (Claim 6), a heating element being stable at a temperature of 600 degree C (Col. 1, lines 62-65), and at power density exceeding 10 W per cm square (Col. 2, lines 7-10), and pyrolysis method of depositing (Claim 7). It would have been obvious to one having ordinary skill in the art at the time the invention was made

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to use rare earth elements as taught by Hunt et al and Sasaki et al to provide a satisfactory stability in the high power density application of the heating element.

3. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Auding et al in view of Hunt et al and further in view of Cooper (5,616,266). Auding et al in view of Hunt et al discloses substantially the claimed invention, except that a metal oxide is a tin oxide. Cooper shows a metal oxide being a tin oxide (Abstract). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a tin oxide to allow delivery of substantial power at lower operating temperatures and low power densities for greater efficiency as taught by Cooper (Abstract, lines 16-18).

4. Claims 8 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Auding in view Hunt and Sasaki and further in view of Flory et al (5,132,280).

Auding in view of Hunt and Sasaki discloses substantially the claimed features except that a metal layer is free of fluorine. Flory et al shows a metal layer free of fluorine (Abstract). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a metal layer free of fluorine to simplify deposition control of the metal deposits as taught by Flory (Abstract, lines 12-15)

5. Claims 12 -15, and 22-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Auding in view of Hunt and Sasaki and further in view of Sano et al (5,130,281).

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Auding in view of Hunt and Sasaki discloses substantially the claimed features, except concentration of rare earth elements. Sano et al discloses a concentration of rare elements between 2.5- 5 mol % (Abstract). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a concentration of rare elements as taught by Sano to be suitable for heating element applications and for better stability (Abstract).

6. Claims 18 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Auding in view of Hunt, Sasaki and further in view of Brown (4,721,632).

Auding in view of Hunt and Sasaki discloses substantially the claimed invention, except a monobutyl tin trichloride. Brown discloses a monobutyl tin trichloride (Col. 5, lines 20-25). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a monobutyl tin trichloride to give the doped tin oxide film the desired conductivity and emissivity characteristics as taught by Brown (Col. 5, lines 20-25).

7. Claim 3, 21 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Auding in view of Hunt, Sasaki and further in view of Dinter (6,404,130).

Auding in view of Hunt and Sasaki discloses substantially the claimed invention, except equal concentration of rare elements. Dinter discloses a heater with three equal concentration of rare earth metals (Col. 5, lines 19-20). It would have been obvious to one having ordinary skill in the art at the time the invention was made

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to use an equal concentration of rare elements to maximize stability of the heating element as taught by Dinter (Col. 5, lines 19-20).

8. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Auding e in view of Hunt, Sasaki and further in view of Aslam et al (4,912,0870. Auding in view of Hunt and Sasaki discloses substantially the claimed feature, except a step of annealing. Aslam shows a step of annealing during a manufacturing of thin film electrical heating element (Col. 2, lines 19-29). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a step of annealing as taught by Aslam to assist in stabilizing the film (Col. 2, lines 19-29).

9. Applicant's arguments with respect to claims 1-29 have been considered but are moot in view of the new ground(s) of rejection. Notwithstanding Applicant's arguments regarding a minor amount of a dielectric material, it would have been obvious to one having ordinary skill in the art to adjust an amount of the dielectric material because it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable range involves only routine skill in the art.

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory

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action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonid M Fastovsky whose telephone number is 703-306-5482. The examiner can normally be reached on M-Th. 8.00 am -6.00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ehud Gartenberg can be reached on 703-308-2634. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0861.



**EHUD GARTENBERG**  
**PRIMARY EXAMINER**

Leonid M Fastovsky  
Examiner  
Art Unit 3742

Lmf